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Christopher J. Lord

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SCHWABE, WILLIAMSON & WYATT, P.C.

PACWEST CENTER, SUITE 1900

1211 S.W. FIFTH AVE.

PORTLAND, OR 97204

EXAMINER

ZHANG, SHIRLEY X

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/815,396

**Applicant(s)**

LORD ET AL.

**Examiner**

SHIRLEY X. ZHANG

**Art Unit**

2444

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-9, 11, 23 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-9, 11, 23 and 25-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This final office action is prepared in response to the applicant's amendments and arguments filed on December 21, 2009 as a reply to the non-final office action mailed on September 29, 2009.

Claims 1-6, 8-9, 11 and 23-31 were pending in the previous office action;

Claim 24 has been cancelled since;

Claims 1, 3, 9, 23, 25 and 27-31 are amended;

Claims 1-6, 8-9, 11, 23 and 25-31 are now pending;

### ***Response to Arguments***

Applicant's arguments and amendments filed on December 21, 2009 have been carefully considered but deemed unpersuasive in view of the following new grounds of rejection as explained herein below, necessitated by Applicant's substantial amendments to the claims which significantly affected the scope thereof, and will require further search and consideration.

In an attempt to overcome the rejection, Applicant has amended claim 27 to include "An article of manufacture comprising a tangible, machine accessible storage medium."

However, the amendments are not sufficient to overcome the rejection because they fail to cite "a machine-readable non-transitory storage medium."

1. Claims 27-31 were previously rejected under 35 U.S.C. 101.

2. The rejection of claims 3 and 25 under 35 U.S.C. 112 2<sup>nd</sup> paragraph is withdrawn in view of the claim amendments.

3. Applicant has amended claims 1, 4-6, 9-11, 23, 27-31 to clarify that the steps in the claimed method are performed by an intermediate gateway.

After a careful review of the amended claims and an updated prior art search, Examiner introduces a new ground of rejection under 35 U.S.C. 103(a) based on a newly found reference Maher et al. (US 7,406,709).

Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 27-31** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**Claim 27** recites “an article of manufacture comprising a tangible machine accessible storage medium.”

However, according to one of ordinary skill in the art, “a tangible, machine accessible storage medium” may include transitory media such as a signal or a carrier wave, leading the claimed invention to include unpatentable subject matter.

Therefore, Applicant is suggested to amend the claim to cite “a machine-readable non-transitory storage medium.”

**Claims 28-31** are dependent on claim 27, but fail to further limit claim 27 to statutory subject matter, therefore inherit the 35 U.S.C. 101 issue of the independent claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-2, 5-6, 9, 11, 23, 27-31** are rejected under 35 U.S.C. 103(a) as obvious over Maher et al. (US 7,406,709, hereinafter “**Maher**”), in view of Crosbie (US 2002/0035699).

**Regarding claim 1**, Maher disclosed a method for an intermediary gateway to selectively couple an external network and an internal network to dynamically generate filter rules to facilitate establishing an end to end secure session connection between a first device on the internal network and a second device of the external network (Maher, “Abstract” and Figs. 1a, 1b, 7 and col. 5, lines 10-67 disclosed a nCite/NTS, an NAPT Firewall and an NTA (i.e. network transversal agent), which together form an entity that anticipates the intermediary gateway in the current claim), the method comprising:

receiving by the intermediary gateway, a secure session establishment request by the second device on the external network to establish a secure communication session with the first device on the internal network (Maher, Fig. 7 and col. 16, lines 9-53 disclosed a signaling diagram showing an inbound VoIP call from a device in the public network, where an example of the device can be found in Fig. 1 and said device anticipates the “second device” in the claim”; The “INVITE” message that is received by the nCite and then the NTA anticipates “a secure session establishment request” in the claim);

forwarding by the intermediary gateway, the secure session establishment request to the first device (Maher, Fig. 7 showed that NTA forwards the INVITE message to an IP phone (with the address 10.10.108.10) in the private network; here the IP phone in the private network anticipates “the first device” in the claim);

monitoring by the intermediary gateway, the internal network to detect an approval or disapproval acknowledgement by the first device for the secure session establishment request (Maher, Fig. 7 disclosed that NTA and nCite/NTS receives the 200OK from the private IP phone, where the 200OK anticipates “an approval acknowledgement” in the claim); and

configuring by the intermediary gateway, a first filter rule of the intermediary to allow communication between the first and second devices through the intermediary, if an approval authentication acknowledgement is detected by the intermediary gateway (Maher, Fig. 7 and col. 15, lines 23-38 disclosed that after receiving the 200OK, the nCite/NTS sends an Anchor message to the NTA, and the NTA then sends a Test packet to the firewall to create an entry in the address/port translation table so that the firewall will allow the media data to flow through);

Maher did not explicitly disclose

determining by the intermediary gateway, whether network traffic from the second device is corresponding to a previous secure communication session established when the second device was previously on the internal network, wherein the second device uses an address that is globally routable on the internal and the external networks and therefore said network traffic is valid with respect to the internal network; and

responding by the intermediary gateway, to said network traffic with an error and forcing the second device to re-establish a secure communication session from the external network.

However, Crosbie disclosed that in a system where when mobile devices connect to a network protected by Gateway Server and Firewall (Crosbie, Fig. 1), the mobile device is typically required to re-establish a stateful end-to-end connection such as IPSec (Crosbie, [0008]), which is essentially what the above cited claim elements try to do.

One of ordinary skill in the art would have been motivated to combine Maher and Crosbie because both disclosed establishing a secure end-to-end connection between a client device in a first network and a device in a second network (Maher, Figs. 1b-1b; Crosbie, Fig. 1).

Therefore, it would have been obvious for one skilled in the art to combine Maher and Crosbie's teaching to realize that if the client device in Maher were a roaming mobile that moved outside its previous network, the secure end-to-end would have to be re-established.

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**Claim 27** lists substantially the same elements of **claim 1**, but in product form rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 27**.

**Regarding claims 2 and 28**, the combination of Maher and Crosbie disclosed the method of claims 1 and 27.

Maher further disclose determining by the intermediary gateway, a presence advertisement for the first device has been received before forwarding the secure session establishment request to the first device (Maher, col 16, lines 38-52 disclosed that the IP phone in the private network must first register with the nCite/NTS; then when the nCite/NTS receives the INVITE message, it can lookup the private address of the IP phone based on the registration information; the register message shown in Maher, Fig. 7 anticipates "a presence advertisement" in the claim; and the lookup step performed by the nCite/NTS is essentially the same as "determining a presence advertisement for the first device has been received").

**Regarding claims 5, 29**, the combination of Maher and Crosbie disclosed the subject matter of claims 1 and 27, respectively.

Maher further disclosed

receiving by the intermediary gateway, a service request from the second device for the first device, the service request having an associated communication port for performing the service (Maher, col. 15, lines 6-9 disclosed that the INVITE contains a Session Description



Protocol (SDP) parameter that specifies the address and port the IP phone will use to receive media traffic);

determining by the intermediary gateway, the service request identifies a service advertised by the first device in a device description document (Maher, col. 16, lines 46-53, where it is implicit the register message advertises the voice service); and

configuring by the intermediary gateway, a second filter rule to allow communication between the first device and the second device using the associated communication port (Maher, Fig. 7 and col. 15, lines 23-38).

**Regarding claims 6 and 30**, the combination of Maher and Crosbie disclosed the subject matter of claims 1 and 27, respectively.

Providing by the intermediary gateway, the second device with an indicia for use by the second device in establishing a communication link to the first device (Maher, Fig. 7 shows that a 200ok was sent by the nCite/NTS to a device in the public network, where the 200OK carries the IP address and port number the inbound media data can be sent from the public network to the private network; here nCite/NTS is a part of the intermediary gateway).

**Regarding claims 9 and 31**, the combination of Maher and Crosbie disclosed the method of claims 1 and 27.

Maher further disclosed

retrieving an Access Control List (ACL) from the first device, the ACL including an identification of devices authorized to establish communication sessions; and determining by the

intermediary gateway, based at least in part on the ACL the second device is authorized to establish the secure communication session with the first device before forwarding the secure session establishment request to the first device (Maher, col. 3, line32 disclosed static filtering rules called Access Control Lists (ACL)).

**Regarding claim 11**, the combination of Maher and Crosbie disclosed the method of claims 1 and 27.

Maher further disclosed establishing by the intermediary gateway, the end to end secure session connection between the first device on the internal network and the second device of the external network in a single end to end secure session connection between said first and second devices (Maher, Figs. 6 and 7).

**Claim 23** lists substantially the same elements of **claim 1**, but in system form rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 23**.

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6. **Claim 3** is rejected under 35 U.S.C. 103(a) as obvious over Maher and Crosbie, further in view of Moyer et al.(U.S. 2002/0103898, hereinafter “Moyer”).

**Regarding claim 3**, the combination of Maher and Crosbie disclosed the method of claim 2.

Maher did not explicitly disclose wherein the presence advertisement is delivered in accordance with the UPnP Simple Service Discovery Protocol (SSDP).

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However, Moyer disclosed a device messaging protocol (DMP) and explicitly states that it is similar to universal plug n play (UPnP) Device Control Protocol and the DMP protocol includes a Register message to announce to the network a device's presence (Moyer, [0042]).

Moyer's disclosure makes it clear that at the time the invention was made, it was well known by one skilled in the art that UPnP, just like the SIP based DMP, can be used to facilitate communication between devices in a public network and those in a private network, motivating one to migrate the knowledge well known in systems using SIP into the systems using UPnP.

As UPnP Simple Service Discovery Protocol (SSDP) is the protocol in UPnP framework for discovering device, which serves the same purpose as SIP REGISTER, it would have been obvious for one to substitute UPnP for SIP in Maher to achieve the same result. Such modification, along with the combination of Maher and Crosbie, would have resulted in a remote home appliance control system using UPnP with end-to-end security.

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7. **Claim 4** is rejected under 35 U.S.C. 103(a) as obvious over Maher and Crosbie, further in view of Cho (U.S. 2003/0217136).

**Regarding claim 4**, the combination of Maher and Crosbie disclosed the method of claim 1.

Maher did not explicitly disclose receiving network traffic from the second device corresponding to the second device requesting a UPnP Device Description Document from the first device.

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However, in a system for controlling appliances in an internal network from an external network, Cho disclosed using UPnP and receiving network traffic from the second device corresponding to the second device requesting a UPnP Device Description Document from the first device (Cho, Fig. 7 and [0071] disclose that upon receiving a service description request message from the stub 102 (step 717), the agent 131 sends the received message to the bridge 132 (step 718), which then transfers it to the specific UPnP device (step 719)).

One of ordinary skill in the art would have been motivated to combine Maher and Cho because both disclosed accessing devices in an internal network from a device in an external Internet via a proxy (Maher, Figs. 1a-1b; Cho, Fig. 1).

Therefore, it would have been obvious for one to apply Maher's teaching of a general purpose method for creating end-to-end secure session using any protocols to Cho's system to achieve the desirable result of securing the communications between Cho's wired/wireless internet client and UPnP home devices such that the UPnP devices will not be tempered by malicious clients from the internet.

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8. **Claims 25-26** are rejected under 35 U.S.C. 103(a) as obvious over Maher and Crosbie, further in view of Cho (U.S. 2003/0217136) and the article "UPnP™ Security Ceremonies Design Document For UPnP Device Architecture 1.0" authored by Ellison and published by the UPnP Forum (hereinafter "**Ellison**").

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**Regarding claim 25**, the combination of Maher and Crosbie disclosed the system of claim 23.

Maher did not explicit disclose wherein the first device communicates with the second device in accord with the UPnP Security Protocol.

However, disclosed that the first device communicates with the second device in accord with the UPnP Security Protocol (Cho, Fig. 1 and “Abstract” disclosed using UPnP framework to control devices in an internal network from a device in an external network).

However, Cho disclose a UPnP-based system for controlling appliances in an internal network from an external network (Cho, Fig. 1 and “Abstract”), while Ellison disclosed a UPnP security protocol, for a UPnP system.

One of ordinary skill in the art would have been motivated to combine Maher and Cho because both disclosed accessing devices in an internal network from a device in an external Internet via a proxy(Maher, Figs. 1a-1b; Cho, Fig. 1).

Therefore, it would have been obvious for one skilled in the art to combine Maher’s teaching of a general purpose method for creating end-to-end secure session using any protocols with Cho’s teaching of a UPnP framework for controlling UPnP compatible home appliances and realize that the UPnP security protocol disclosed by Ellison is an obvious choice for Cho’s security needs.

**Regarding claim 26**, the combination of Maher and Crosbie disclosed the system of claim 23.

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Maher did not explicitly disclose that the secure communication initiation request corresponds to a UPnP Set Session Key (SSK) request.

However, Cho disclose a UPnP-based system for controlling appliances in an internal network from an external network (Cho, Fig. 1 and “Abstract”), while Ellison disclosed a UPnP security protocol for an UPnP system, where a UPnP Set Session Key (SSK) request is used to initiate a secure communication (Ellison, page 13, section 5, “Session Keys”)

Therefore, it would have been obvious for one skilled in the art to combine Maher’s teaching of a general purpose method for creating end-to-end secure session using any protocols with Cho’s teaching of a UPnP framework for controlling UPnP compatible home appliances and realize that the UPnP security protocol disclosed by Ellison is an obvious choice for Cho’s security needs.

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9. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Maher and Crosbie as applied to claim 1 above, further in view of Le et al. (U.S. 2005/0111382, hereinafter “Le”).

**Regarding claim 8**, the combination of Maher and Crosbie disclosed the method of claim 1.

Maher did not explicitly disclose but Le disclosed that communication within the internal network is in accord with an IPv6 compatible Internet Protocol (IP) (Le, [0014] discloses that the architecture as illustrated in FIG. 1 has been recently adopted in 3GPP for the internetworking of IPv6 and IPv4 domains; In 3GPP, it is inherent that the internal network uses IPv6).

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One of ordinary skill in the art would have been motivated to combine Maher and Le because both disclosed using a firewall to secure communications between devices in two networks (Maher, Figs. 1a-1b; Le, Fig. 2).

Therefore, it would have been obviousness for one of ordinary skill to integrate Le's teaching of supporting IPv6 into Maher such that Maher's system supports IPv6 as the network technology progresses and IPv6 becomes the new standard for mobile networks. The combination would have made Maher's invention more readily available for mobile networks that run on IPv4.

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### ***Conclusion***

**THIS ACTION IS FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHIRLEY X. ZHANG whose telephone number is (571)270-5012. The examiner can normally be reached on Monday through Friday 8:00am - 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on (571) 272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S.X.Z./ Art Unit 2444  
2/3/2010

/William C. Vaughn, Jr./

Supervisory Patent Examiner, Art Unit 2444